Table 3.3: Quantitative High Level Requirements

Quantity	Requirement	comment
Angular acceptance	10 mr to 300 mr	single arm, forward in direction of antiproton beam
Charged Particle Momentum acceptance	>3 GeV	
Mass resolution (all charged state)	<50 MeV/c^2	e.g. $B_s \to D_s K$ $D_s \to K^+K^-\pi$
Tracking efficiency	>98%	
Primary Vertex Resolution	100 μm	for typical light quark event
Proper Time resolution	<50 fs	based on B_s Mixing, $x_s < 60$ and $\Delta\Gamma$ for $B_s < 10\%$
Trigger efficiency	>50%	For B decays that would pass all analysis cuts with $\geq$ 2 charged tracks from B or D vertex
	>20%	For B decays with a single prong at the B vertex and a $K_s \to \pi^+\pi^-$
Trigger rejection	99.8%	Light quark events
Maximum data rate to archival storage	<200 Mbyte/sec	
Particle id	π-K separation from 3 to 70 GeV	$\geq 4\sigma$
	p-K separation from 3 to 70	$\geq 4\sigma$
Electromagnetic calorimeter resolution	$< 2\%\sqrt{E}$	
Electromagnetic calorimeter energy range	>1 GeV	limited by noise and combinatoric background
Electromagnetic calorimeter acceptance	maximum >200 mr minimum 10 mr	Almost all photons of interest lie within this range
Muon identification	Momentum from 5 to 100 GeV/c	$\leq$ 200 mr due to interference with floor
Muon Misidentification	$<10^{-3}$	
Muon Momentum Resolution	$\frac{\sigma_p}{p} = 19\% \oplus 0.6\% \times p$	For stand alone muon trigger
Luminosity	>2x10^{32}	
Interactions/crossing	$< 6.0 >$	
Time response	<100ns	to handle 132 ns bunch intervals
Radiation Resistance	at least 10 years	all detectors